University of California
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SEASONAL LABOR NEEDS FOR CALIFORNIA CROPS

SAN BERNARDINO COUNTY

Progress Report No. 36

by

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(Farm Labor Survey -- January-June, 1936)

Progress Report No. 36

Seasonal Labor Needs for California Crops

San Bernardino County

Scope of Presentation.-- The following considerations govern the presentation of this progress report:

1. The data are confined to the area indicated above.

2. The data are confined solely to crops, livestock needs being ignored.

3. The findings apply only to occasional or seasonal labor requirements as distinguished from labor contributed by farm operators and by workers employed on a year-round or regular basis of employment.

4. The presentation includes the so-called migratory, transient, or roving workers which comprise an important source of help needed in connection with certain tasks and at "peak" times which seasonally arise in connection with many field, truck, and fruit crops commercially produced in California.

5. This report is confined to California's need for seasonal agricultural workers because of the more pressing problems liable to arise in connection therewith. A later study is planned which will deal with other kinds of labor involved in the production of California's many crops.

Brief Description of the Area.-- San Bernardino is one of the southern counties of California. Its southwest corner is about 30 miles east of the city of Los Angeles. It is bordered on the west by Los Angeles and Kern counties, along a boundary which extends northward about 125 miles. On the north it joins Inyo County for about 110 miles eastward to the Nevada line. The boundary follows the state line southeastward to the Colorado River, which, from this point, forms the boundary between San Bernardino County and Arizona on the east. On the south it is bounded for its full length of about 260 miles by Riverside County, except for a short distance at the southwest corner where it joins Orange County.

San Bernardino has the largest total area of any county in the state. The agricultural district, however, makes up but a small portion of the total and is largely concentrated in the southwest corner, contiguous to a number of important cities and towns among which are San Bernardino, Redlands, Colton, Ontario, Upland, Chino, Cucamonga, Yucaipa, and others. It is adjacent to Los Angeles County on the west and Orange and Riverside counties on the southwest and south. There is also a limited area of land formed along the Mojave River, between Victorville and Barstow in the central-western part of the county.

The county contains a total of 12,912,000 acres of which 183,814 acres are classed as available for crops by the 1935 Census. This is further classified as follows by the Census for the crop year 1934.

(Farm Labor Survey -- January-June, 1956)

Progress Report No. 26

Seasonal Labor Needs for California Crops

San Bernardino County

Scope of Presentation.-- The following considerations govern the presentation of this progress report:

1. The data are confined to the area indicated above.

2. The data are confined solely to crops. Livestock needs being ignored.

3. The findings apply only to seasonal or seasonal labor requirements as distinguished from labor contributed by farm operators and by workers employed on a year-round or regular basis of employment.

4. The presentation includes the so-called migratory, transient, or roving workers which comprise an important source of help needed in connection with certain tasks and at "peak" times which seasonally arise in connection with many fruit, truck, and fruit crops commercially produced in California.

5. This report is confined to California's need for seasonal agricultural workers because of the more pressing problems liable to arise in connection therewith. A later study is planned which will deal with other kinds of labor involved in the production of California's many crops.

Brief Description of the Area.-- San Bernardino is one of the northern counties of California. The southwest corner is about 60 miles east of the city of Los Angeles. It is bordered on the west by Los Angeles and Kern counties, along a boundary which extends northward about 125 miles. On the north it joins Inyo County for about 110 miles eastward to the Nevada line. The boundary follows the state line southeastward to the Colorado River, which, from this point, forms the boundary between San Bernardino County and Arizona on the east. On the south it is bounded for its full length of about 250 miles by Riverside County, except for a short distance at the southwest corner where it joins Orange County.

San Bernardino has the largest total area of any county in the state. The agricultural district, however, makes up but a small portion of the county and is largely concentrated in the northwest corner, contiguous to a number of important cities and towns among which are San Bernardino, Redlands, Colton, Ontario, Pomona, Chino, Cucamonga, Upland, and others. It is adjacent to Los Angeles County on the west and Orange and Riverside counties on the southwest and south. There is also a limited area of land formed along the Mojave River, between Victorville and Barstow in the central-eastern part of the county.

The county contains a total of 12,912,000 acres, of which 1,823,914 acres are classed as available for crops by the 1950 Census. This is further classified as follows by the Census for the crop year 1954:

	Acreage
Crop land harvested	134,434
Crop failure	2,456
Crop land idle or fallow	33,057
Plowable pasture	13,867
Total land available for crops	183,814

Crop acreages, as determined from the report of the County Agricultural Commissioner, for the year 1935 are as follows:

	Acreage
Field crops	44,851
Vegetable crops	4,216
Orchard and vineyard, bearing	92,831
Orchard and vineyard, nonbearing	7,494
Total	149,392

Crops, Acreage, and Production.-- The basis used in calculating occasional or seasonal need for labor in addition to that furnished by farm operators and regularly employed workers appears as table 1.

TABLE 1

Basis for Calculating Seasonal Labor Requirements -- San Bernardino County

Crops	Acreage	Production
Field crops:		
Alfalfa hay	12,820	64,100 tons
Beans	3,078	31,279 sacks
Corn - Milo	651	5,563 sacks
for ensilage	1,328	18,620 tons
Grain	6,681	134,795 sacks
Grain hay	16,317	27,585 tons
Potatoes - Irish	1,157	138,415 sacks
sweet	910	302,545 packed lugs
Sugar beets	1,595	19,862 tons
Vegetable crops:		
Corn - sweet	1,888	416,050 lugs
Melons*	342	2,801 tons
Pumpkins and squash*	159	833 tons
Tomatoes	1,432	10,673 tons
Miscellaneous vegetables	554	--

(Table continued on next page.)

	Acreage
Crop land harvested	134,164
Crop failure	2,466
Crop land idle or fallow	32,067
Plowable pasture	15,067
Total land available for crops	183,316

Crop acreages, as determined from the report of the County Agricultural Commissioner, for the year 1935 are as follows:

	Acreage
Field crops	14,881
Vegetable crops	4,216
Orchard and vineyard, bearing	92,831
Orchard and vineyard, nonbearing	7,424
Total	149,352

Crops, Acreage, and Production.— The basis used in calculating seasonal or seasonal need for labor in addition to that furnished by farm operators and regularly employed workers appears as table 1.

TABLE 1

Basis for Calculating Seasonal Labor Requirements — San Bernardino County

Crops	Acreage	Production
Field crops:		
Alfalfa hay	12,820	64,100 tons
Beans	3,079	31,279 sacks
Corn, milo	681	5,166 sacks
for ensilage	1,318	18,830 tons
Grain	6,881	134,756 sacks
Grain hay	16,817	27,885 tons
Potatoes - Irish	1,157	131,415 sacks
sweet	910	302,649 packed lugs
Sugar beets	1,895	18,882 tons
Vegetable crops:		
Corn - sweet	1,896	416,080 lugs
M lons	342	2,801 tons
Pumpkins and squashes	158	832 tons
Tomatoes	1,152	10,676 tons
Miscellaneous vegetables	654	—

(Table continued on next page.)

Table 1 continued.

Crops	Acreage	Production
Fruit crops:		
Almonds*	88	16 tons
Apples	1,524	5,221 tons †
Apricots	750	2,392 tons
Avocados	39	44,800 pounds
Berries (Chino district only)	134	35,700 crates ‡
Cherries	204	178 tons
Citrus fruits - grapefruit	2,555	727,000 field boxes of 45 pounds ¶
oranges - navel	29,735	11,056 cars)
oranges - Valencia	10,229	5,166 cars) 13,300,000 field
oranges - miscellaneous	1,629	588½ cars) boxes of 47 pounds ¶
lemons	4,456	2,713 cars -- equivalent to 1,709,000 field boxes of 50 pounds ‖
Figs*	29½	35 tons
Grapes	26,383	53,454 tons
Olives	836	387 tons
Peaches - cling	2,711	8,121 tons
freestone	2,281	5,539 tons
Pears*	209	141 tons
Plums	275	840 tons
Persimmons*	54	78 tons
Walnuts	9,831	3,481 tons

* Use of seasonal labor inconsequential and hence ignored.

† Production of apples is compiled as follows: 225,290 boxes at 40 pounds each plus 718 tons culls.

‡ Total county production was 56,270 crates.

¶ Production of grapefruit is compiled as follows: 482,421 packed boxes (56 pounds net) plus 5,711,681 pounds loose fruit and culls.

¶ Production of oranges is compiled as follows: 7,732,943 packed boxes (72 pounds net) plus 69,339,669 pounds loose fruit and culls.

‖ Basis of calculation: 630 field boxes required per car -- 2,713 cars.

Operations Requiring Use of Seasonal Labor and Time of Need.-- Farm operations requiring use of seasonal or occasional labor for the various crops raised in San Bernardino County are indicated in table 2. This tabulation does not indlude the employing of shed workers needed to wash, pack, and prepare various commodities for shipping and marketing.

Table 1 continued.

Crops	Acreage	Production
Fruit crops:		
Almonds	88	18 tons
Apples	1,524	5,221 tons †
Apricots	750	2,392 tons
Avocados	89	44,800 pounds
Berries (Chino district only)	134	36,700 crates ‡
Cherries	204	178 tons
Citrus fruits - grapefruit	2,556	727,000 field boxes of 46 pounds ¶
oranges - navel	29,728	11,038 cars)
oranges - Valencia	10,229	5,168 cars) 18,200,000 field
oranges - miscellaneous	1,829	688 cars) boxes of 17 pounds ¶
lemons	4,486	2,712 cars -- equivalent to 1,708,000 field boxes of 50 pounds ¶
Figs*	254	85 tons
Grapes	20,525	18,464 tons
Olives	836	387 tons
Peaches - clingstone	2,711	8,121 tons
freestone	2,281	6,539 tons
Pears*	203	141 tons
Plums	275	840 tons
Persimmons*	64	78 tons
Walnuts	9,831	3,421 tons

* Use of seasonal labor inconsequential and bones ignored.

† Production of apples is compiled as follows: 288,250 boxes at 42 pounds each plus 718 tons culls.

‡ Total county production was 56,270 crates.

¶ Production of grapefruit is compiled as follows: 402,423 packed boxes (56 pounds net) plus 6,771,801 pounds loose fruit and culls.

¶ Production of oranges is compiled as follows: 7,722,845 packed boxes (42 pounds net) plus 89,539,869 pounds loose fruit and culls.

¶ Basis of calculation: 880 field boxes required per car -- 8,712 cars.

Conditions Requiring Use of Seasonal Labor and Time of Need.-- Farm operations requiring use of seasonal or casualnal labor for the various crops raised in San Bernardino County are indicated in table 2. This table does not include the employing of shed workers needed to wash, pack, and prepare various commodities for shipping and marketing.

TABLE 2

Operations Requiring Use of Seasonal Labor and Times of Needs by Crops
San Bernardino County

Crop	Operation	Time of need
Field crops: Alfalfa	Mowing, raking, and shocking--75 per cent by seasonal workers	April, May, June, July, August, September, October — 11,000 acres each month -- six cuttings five weeks apart
	Baling (75 per cent of crop equals 48,075 tons) -- 75 per cent by seasonal workers	April, May, June, July, August, September, October — 6,868 tons per month
Beans	Piling -- with fork	August 15-31 -- 10 per cent of crop September 1-30 -- 80 per cent of crop October -- 10 per cent of crop
	Threshing	August -- 5 per cent of crop September -- 80 per cent of crop October -- 15 per cent of crop
Corn - Milo (for grain)	Cutting heads, by hand	December -- 50 per cent of acreage
	Threshing by stationary	December -- 50 per cent of crop
	Cutting by combine	December -- 50 per cent of acreage
Corn - Milo (for ensilage)	Cutting by hand and loading trucks	September 20-30 -- 15 per cent of acreage October 1-30 -- 50 per cent of acreage November 1-20 -- 35 per cent of acreage
Grain	Threshing by stationary (50 per cent of crop) -- 90 per cent by seasonal workers	June -- 35 per cent of crop July -- 15 per cent of crop
	Harvesting by combine -- 60 per cent by seasonal workers	June -- 50 per cent of acreage

(Table 2 continued on next page.)

TABLE 2

Operations Requiring Use of Seasonal Labor and Times of Needs by Crops
San Bernardino County

Crop	Operation	Time of need
Alfalfa:		
Alfalfa	Mowing, raking, and shocking -75 per cent by seasonal workers	April, May, June, July, August, September, October — 11,000 acres each month — six cutting — five weeks apart
	Baling (75 per cent of crop equals 46,075 tons) — 75 per cent by seasonal workers	April, May, June, July, August, September, October — 6,886 tons per month
Beans	Pulling — with fork	August 15-31 — 10 per cent of crop September 1-30 — 80 per cent of crop October — 10 per cent of crop
	Threshing	August — 5 per cent of crop September — 80 per cent of crop October — 15 per cent of crop
Corn - Milo (for grain)	Cutting heads, by hand	December — 50 per cent of acreage
	Threshing by stationary Cutting by combine	December — 50 per cent of crop December — 50 per cent of acreage
Corn - Milo (for ensilage)	Cutting by hand and loading trucks	September 20-30 — 15 per cent of acreage October 1-30 — 30 per cent of acreage November 1-20 — 35 per cent of acreage
Grain	Threshing by stationary (50 per cent of crop) — 50 per cent by seasonal workers	June — 35 per cent of crop July — 15 per cent of crop
	Harvesting by combine — 50 per cent by seasonal workers	June — 50 per cent of acreage

(Table 2 continued on next page.)

Table 2 continued.

Crop	Operation	Time of need
Field crops: (continued)		
Grain hay	Mowing, raking, and shocking -- 50 per cent by seasonal workers	May 1-31
	Trimming (25 per cent of acreage)-50 per cent by seasonal workers	May 15-31 -- 12½ per cent of acreage June 1-15 -- 12½ per cent of acreage
	Baling -- 75 per cent by seasonal workers	June 1-30 -- 75 per cent of crop July 1-31 -- 25 per cent of crop
Potatoes - Irish	Cutting seed	March
	Picking up, grading, and putting in lugs or sacks	June 20-30 -- 25 per cent of crop in lugs July 1-31 -- 75 per cent of crop in sacks
Potatoes - sweet	Pulling plants from hotbed	May
	Planting in field (by machine)-80 per cent by seasonal workers	May
	Picking up, hauling in, and dumping -- 80 per cent by seasonal workers	October 15-31 -- 25 per cent of crop November 1-15 -- 25 per cent of crop
	Picking up and packing in field -- 80 per cent by seasonal workers	October 15-31 -- 25 per cent of crop November 1-15 -- 25 per cent of crop
Sugar beets	Thinning	February 20-28 -- 5 per cent of acreage March -- 20 per cent of acreage April -- 50 per cent of acreage May -- 25 per cent of acreage
	Hoeing -- first time	March 20-31 -- 5 per cent of acreage April 1-30 -- 20 per cent of acreage May 1-30 -- 50 per cent of acreage June 1-30 -- 25 per cent of acreage
	Hoeing -- second time	May -- 20 per cent of acreage June -- 50 per cent of acreage

(Table 2 continued on next page)

Table 2 continued.

Crop	Operation	Time of need
Sugar beets (continued)	Topping and loading	August 1-31 -- 39 per cent of crop September 1-30 -- 38 per cent of crop October 1-31 -- 23 per cent of crop
Vegetable crops:		
Sweet corn	Suckering	June 15-30 -- 20 per cent of acreage July 1-31 -- 60 per cent of acreage August 1-31 -- 20 per cent of acreage
	Picking and packing -- 50 per cent by seasonal workers	July 15-31 -- 10 per cent of crop August -- 35 per cent of crop September -- 35 per cent of crop October -- 20 per cent of crop
Tomatoes	Transplanting to field by hand	April -- 10 per cent of acreage May -- 90 per cent of acreage
	Hoeing -- two times	May) June) two-thirds of acreage July) each month
	Dusting -- three times	May) June) once, all acreage July)
	Picking	August -- 20 per cent of crop September -- 40 per cent of crop October -- 40 per cent of crop
Fruit crops:		
Almonds -- use of seasonal labor inconsequential -- hence ignored.		
Apples	Pruning -- 20 per cent by seasonal labor	November 20-30 -- 5 per cent of acreage December -- 30 per cent of acreage January -- 30 per cent of acreage February -- 20 per cent of acreage March -- 10 per cent of acreage
	Thinning (two-thirds of acreage) 75 per cent by seasonal workers	June 15-30 -- 25 per cent of acreage July 1-31 -- 75 per cent of acreage

(Table continued on next page.)

Table 2 continued

Crop	Operation	Time of need
Apples (continued)	Picking	September -- 20 per cent of crop October -- 70 per cent of crop November -- 10 per cent of crop
	Packing -- 66 per cent of crop	September -- 13 per cent of crop October -- 47 per cent of crop November -- 6 per cent of crop
Apricots	Picking	June 25-30 -- 15 per cent of crop July 1-25 -- 85 per cent of crop
	Cutting	June 25-30 -- 15 per cent of crop July 1-25 -- 85 per cent of crop
	Other dry-yard work	June 25-30 -- 15 per cent of crop July 1-25 -- 85 per cent of crop
Avocados -- use of seasonal labor inconsequential -- hence ignored.		
Berries - young-berries	Picking (Chino district only) 90 per cent by seasonal workers	May 20-30 -- 15 per cent of crop June 1-30 -- 80 per cent of crop July 1-4 -- 5 per cent of crop
Cherries	Picking Sorting and packing	June June
Citrus - grapefruit	Picking	May -- 8 per cent of crop June -- 19 per cent of crop July -- 22 per cent of crop August -- 21 per cent of crop September -- 13 per cent of crop October -- 7 per cent of crop Balance scattered and inconsequential.
oranges	Picking* -- navels, Valencias, and miscellaneous	November -- 2.4 per cent of crop December -- 3.7 per cent of crop January -- 10.7 per cent of crop February -- 15.4 per cent of crop March -- 18.6 per cent of crop April -- 19.7 per cent of crop May -- 5.1 per cent of crop June -- 4.7 per cent of crop July -- 5.4 per cent of crop August -- 4.2 per cent of crop September -- 4.7 per cent of crop October -- 5.3 per cent of crop

(Table 2 continued on next page.)

Table 2 continued.

Crop	Operation	Time of need
Citrus (continued) lemons	Picking †	November -- 5 per cent of crop December -- 5 per cent of crop January -- 10 per cent of crop February -- 6 per cent of crop March -- 19 per cent of crop April -- 14 per cent of crop May -- 20 per cent of crop June -- 8 per cent of crop July -- 4 per cent of crop August -- 2 per cent of crop September -- 3 per cent of crop October -- 4 per cent of crop
Figs -- use of seasonal labor inconsequential -- hence ignored.		
Grapes	Pruning -- 75 per cent by seasonal workers	December 15-31 -- 10 per cent of acreage January 1-31 -- 50 per cent of acreage February 1-28 -- 40 per cent of acreage
	Burning brush -- 50 per cent by seasonal workers	December 15-31 -- 10 per cent of acreage January 1-31 -- 50 per cent of acreage February 1-28 -- 40 per cent of acreage
	Hoeing	April -- all acreage
	Suckering	April 21-30 -- 50 per cent of acreage May 1-7 -- 50 per cent of acreage
	Sulphuring - three times	April -- all acreage May -- all acreage June -- all acreage
	Picking	September -- 40 per cent of crop October -- 40 per cent of crop November -- 20 per cent of crop
Peaches - cling	Thinning -- 66 per cent by seasonal workers	May 10-30 -- two-thirds of acreage June 1-10 -- one-third of acreage
	Picking -- 75 per cent by seasonal workers	August -- 80 per cent of crop September -- 20 per cent of crop

(Table 2 continued on next page.)

Table 2 continued.

Crop	Operation	Time of need
Peaches - freestone	Pruning -- 50 per cent by seasonal workers	January -- 50 per cent of acreage February --50 per cent of acreage
	Thinning -- 75 per cent by seasonal workers	April 20-30 -- 10 per cent of acreage May 1-31 -- 80 per cent of acreage June 1-10 -- 10 per cent of acreage
	Picking	June -- 15 per cent of crop July -- 20 per cent of crop August -- 60 per cent of crop September -- 5 per cent of crop
	Packing -- 75 per cent of crop	June -- 15 per cent of crop July -- 20 per cent of crop August -- 60 per cent of crop September -- 5 per cent of crop
Pears -- use of seasonal labor inconsequential -- hence ignored.		
Plums	Thinning	May
	Picking	July -- 75 per cent of crop August -- 25 per cent of crop
Persimmons -- use of seasonal labor inconsequential -- hence ignored.		
Walnuts	Shaking off, picking up, and hulling by hand.	September -- 45 per cent of crop October -- 45 per cent of crop November -- 10 per cent of crop

* Distribution of picking labor by months on oranges is estimated from monthly carlot shipments of oranges from Riverside County during 1935.

† Distribution of picking labor by months on lemons is estimated from monthly lemon "pick" of the Ontario-Cucamonga Fruit Exchange 1935-36 season.

Findings of Seasonal Labor Needs.-- Details and summaries of seasonal labor requirements of San Bernardino County agriculture are presented as table 3. The "size of job" are figures drawn from table 1 in terms of either acreage or production in tons, crates, boxes or whatever unit is commonly used. The "output per-man day" is an average figure for the entire acreage or output, figured in pounds, crates, hampers, or boxes, etc., on harvest jobs, or in acreage. If the work is of a nature that requires a crew, different members of which perform different tasks, then the average shown is per man, based on the entire crew. Length of day is 9 hours unless otherwise stated. Wide variations in output occur between farm and farm, field and field, season and season, because of differences in soil types, climatic conditions, weeds, yields, and other factors influencing the amount of work that a laborer can perform in a given day. Moreover, the basis of output is a mature, experienced male

worker, without reference to the use of women, children, and more or less inexperienced help that is sometimes used in connection with certain of the tasks requiring use of seasonal workers. The column headed "available days" reflects (a) the limitations set from the period within which the work must be performed, because of the nature of the task, such as transplanting, thinning, and weeding, and (b) available days as determined by weather conditions, inclement weather reducing the number of days when a required task can be performed. The "required number of workers" is given in terms of workers as noted above in connection with "output per man-day."

It is probable that the estimated number of workers required, as recorded in table 3, will often be too low, for the reason that "peaks" frequently occur, during which an unusually large proportion of the job is done in a very short period. This would naturally require a much greater number of workers than when the work is spread over a longer period, even though the total amount of labor in man-days remains the same.

TABLE 3

Seasonal Labor Needs -- San Bernardino County -- by Months and Tasks

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
January	Apples: Pruning	457 acres	0.20 acre	457†	19	24
	Citrus, Oranges: Picking	1,423,100 field boxes	60 boxes	23,718	19	1,249
	Lemons: Picking	170,900 field boxes	22 boxes	7,768	19	409
	Grapes: Pruning	13,192 acres	0.75 acre	13,192†	19	695
	Burning brush	13,192 acres	2 acres	3,298†	19	174
	Peaches (freestone): Pruning	1,140 acres	0.33 acre	1,710†	19	90
	Totals			50,143	19	2,640 man-months
February	Sugar beets: Thinning	80 acres	0.5 acre	160	6	27 (from 20th to 28th)
	Apples: Pruning	381 acres	0.17 acre	457	22	21
	Citrus, Oranges: Picking	2,048,200 field boxes	60 boxes	34,137	22	1,552
	Lemons: Picking	102,540 field boxes	22 boxes	4,661	22	212
	Grapes: Pruning	10,553 acres	0.75 acre	10,553†	22	480
	Burning brush	10,553 acres	2.0 acres	2,638†	22	120
	Peaches (freestone): Pruning	1,140 acres	0.33 acre	1,710†	22	78
	Totals			54,316	22	2,469 man-months
March	Potatoes (Irish): Cutting seed	10,413 sacks	15 sacks	694	23	31
	Sugar beets: Thinning	320 acres	0.5 acre	640	23	28
	Hoeing - first time	80 acres	1.0 acre	80	10	8 (from 20th to 31st)
	Apples: Pruning	152 acres	0.17 acre	182†	23	8
	Citrus, Oranges: Picking	2,473,800 field boxes	60 boxes	41,230	23	1,793
	Lemons: Picking	324,710 field boxes	30 boxes	10,824	23	471
	Totals			53,650	23	2,333 man-months

Table continued on next page.

Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
April	Alfalfa: Mowing	11,000 acres	10 acres	825†	23	36
	Raking	11,000 acres	20 acres	413†	23	18
	Shocking	11,000 acres	2½ acres (in 5 hours)	3,300† (of 5 hours)	23	144 (half-time)
	Baling	6,868 tons	3 tons	1,717†	23	75
	Sugar beets: Thinning	800 acres	0.5 acre	1,600	23	70
	First hoeing	320 acres	1.0 acre	320	23	14
	Tomatoes: Transplanting to field by hand	144 acres	1.0 acre	144	13	12 (for last one-half month)
	Citrus, Oranges: Picking	2,620,100 field boxes	60 boxes	43,668	23	1,899
	Lemons: Picking	239,260 field boxes	28 boxes	8,485	23	369
	Grapes: Hoeing	26,383 acres	2 acres	13,192	23	574
	Sulphuring	26,383 acres	10 acres	2,639	23	115
	Suckering	13,192 acres	2 acres	6,596	10	660 (from 21st to 30th)
	Peaches (freestone): Thinning	228 acres	0.25 acre	912	10	92 (from 20th to 30th)
	Total			83,811	23	3,644 man-months
May	Alfalfa: Mowing	11,000 acres	10 acres	825†	25	33
	Raking	11,000 acres	20 acres	413†	25	17
	Shocking	11,000 acres	2½ acres (in 5 hours)	3,300 † (of 5 hours)	25	132 (half-time)
	Baling	6,868 tons	3 tons	1,717 †	25	69
	Sweet potatoes: Pulling plants from hotbed	910 acres	1.25 acres	583 †	25	24
	Planting in field	910 acres	0.75 acre	972 †	25	39
	Grain hay: Mowing	16,317 acres	8 acres	1,020 †	25	41
	Raking	16,317 acres	16 acres	510 †	25	26
	Bunching	16,317 acres	20 acres	408 †	25	17
	Trimming	2,040 acres	5 acres	204 †	25	9
	Sugar beets: Thinning	400 acres	0.5 acre	800	25	32
	First hoeing	800 acres	1.0 acre	800	25	32
	Second hoeing	320 acres	1.25 acre	256	25	11

Table continued on next page.

Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
May (continued)	Tomatoes: Transplanting to field	1,289 acres	1.0 acre	1,289	25	52
	Hoeing	954 acres	2 acres	477	25	19
	Dusting	1,432 acres	5 acres	287	25	12
	Berries, Youngberries: Picking Chino district	2,670 crates	8 crates of 24 baskets	334	10	34† (from 20th to 30th)
	Citrus, Grapefruit: Picking	58,160 field boxes	100 boxes	582	24	25
	Oranges: Picking	678,300 field boxes	50 boxes	13,566	24	566
	Lemons: Picking	341,800 field boxes	17 boxes	20,106	24	838
	Grapes: Suckering	13,192 acres	2 acres	6,596	7	943 (from 1st to 7th)
	Sulphuring	26,383 acres	10 acres	2,639	25	106
	Peaches (cling): Thinning ¢	1,808 acres	0.20 acre	6,026†	20	301 (from 10th to 30th)
	(freestone): Thinning ¢	1,825 acres	0.25 acre	5,850†	25	238
	Plums: Thinning ¢	275 acres	0.25 acre	1,100	25	44
	Totals			70,660	25	2,826 man-months
June	Alfalfa: Mowing	11,000 acres	10 acres	825†	25	33
	Raking	11,000 acres	20 acres	413†	25	17
	Shocking by hand	11,000 acres	2½ acres (in 5 hours)	3,300 (of 5 hours)†	25	132 (half-time)
	Baling	6,868 tons	3 tons	1,717†	25	69
	Grain: Threshing by stationary	47,180 sacks	40 sacks (in 10 hours)	1,062 (of 10 hours)†	25	43
	Threshing by combined harvester	3,340 acres	4 acres	501†	25	20
	Grain hay: Trimming	2,040 acres	5 acres	204†	12	17 (from 1st to 15th)
	Baling	20,690 acres	3 tons	5,172†	25	207

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Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
June (continued)	Potatoes (Irish): Picking up, grading, and putting in lugs	3,460,400 pounds	3,600 pounds	962	10	96 (from 20th to 30th)
	Sugar beets: First hoeing	400 acres	1.0 acre	400	25	16
	Second hoeing	800 acres	1.25 acres	640	25	26
	Sweet corn: Suckering	378 acres	3 acres	126	12	11 (from 15th to 30th)
	Tomatoes: Hoeing	954 acres	2 acres	477	25	19
	Dusting	1,432 acres	5 acres	287	25	12
	Apples: Thinning ¶	254 acres	0.2 acre	952†	12	80 (from 15th to 30th)
	Apricots: Picking	360 tons	1,300 pounds	554	5	111 (from 25th to 30th)
	Cutting for drying	360 tons	500 pounds	1,440	5	288 (from 25th to 30th)
	Other dry-yard work ¶	360 tons	11 hours per green ton	396	5	80 (from 25th to 30th)
	Berries, Youngberries: Picking, Chino district	14,240 crates	8 crates of 24 baskets	1,780	25	72‡
	Cherries: Picking	178 tons	200 pounds	1,780	25	72
	Sorting and packing	178 tons	800 pounds	445	25	18
	Citrus, Grapefruit: Picking	138,130 field boxes	100 boxes	1,382	24	58
	Oranges: Picking	625,100 field boxes	50 boxes	12,502	24	521
	Lemons: Picking	136,720 field boxes	10 boxes	13,672	24	570
	Grapes: Sulphuring, all acreage	26,383 acres	10 acres	2,639	25	106
	Peaches (cling): Thinning ¶	904 acres	0.20 acre	3,014†	10	302 (from 1st to 10th)
	(freestone): Thinning ¶	228 acres	0.25 acre	684†	10	69 (from 1st to 10th)
	(freestone): Picking	831 tons	1,350 pounds	1,232	12	103 (for two weeks)

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Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
June (continued)	Peaches: (continued) (freestone): Packing	609 tons	1,725 pounds	707	12	59 (for two weeks)
	Totals			59,265	25	2,371 man-months
July	Alfalfa: Mowing	11,000 acres	10 acres	825†	26	32
	Raking	11,000 acres	20 acres	413†	26	16
	Shocking	11,000 acres	2½ acres (in 5 hours)	3,300 (of 5 hours)†	26	127 (half-time)
	Baling	6,868 tons	3 tons	1,717†	26	66
	Grain: Threshing by stationary	20,220 sacks	40 sacks (in 10 hours)	456 (of 10 hours)†	26	18
	Grain hay: Baling	6,896 tons	3 tons	1,725†	26	67
	Potatoes (Irish): Picking up, grading, and putting in sacks	103,811 sacks	40 sacks	2,596	26	100
	Sweet corn: Suckering	1,133 acres	3 acres	378	26	15
	Picking and packing	41,605 lugs	70 lugs	298†	13	23 (from 15th to 31st)
	Tomatoes: Hoeing	954 acres	2 acres	477	26	19
	Dusting	1,432 acres	5 acres	287	26	11
	Apples: Thinning ¶	762 acres	0.2 acre	2,856†	26	110
	Apricots: Picking	2,033 tons	1,300 pounds	3,128	22	143 (from 1st to 25th)
	Cutting for drying	2,033 tons	500 pounds	8,132	22	370 (from 1st to 25th)
	Other dry-yard work ¶	2,033 tons	11 hours per green ton	2,236	22	102 (from 1st to 25th)
	Berries, Youngberries: Picking Chino district only	890 crates	8 crates of 24 baskets	112	4	28† (from 1st to 4th)
	Citrus, Grapefruit: Picking	159,940 field boxes	100 boxes	1,600	24	67
	Oranges: Picking	718,200 field boxes	50 boxes	14,364	24	599
	Lemons: Picking	68,360 field boxes	10 boxes	6,836	24	285

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Table 3 continued

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
July (continued)	Peaches (freestone): Picking	1,108 tons	1,350 pounds	1,642	26	64
	Packing	831 tons	2,300 pounds	723	26	28
	Plums: Picking	630 tons	1,000 pounds	1,260	26	49
	Totals			55,361	26	2,130 man-months
August	Alfalfa: Mowing	11,000 acres	10 acres	825 †	25	33
	Raking	11,000 acres	20 acres	413 †	25	17
	Shocking	11,000 acres	2½ acres (in 5 hours)	3,300 (of 5 hours) †	25	132 (half-time)
	Baling	6,868 tons	3 tons	1,717 †	25	69
	Beans: Piling with fork	308 acres	0.66 acre (in 4 hours)	462 (of 4 hours)	12	39 (from 15th to 31st)
	Threshing	1,564 sacks	25 sacks	63	6	11 (from 24th to 31st)
	Sugar beets: Topping and loading	7,746 tons	5 tons	1,550	24	65
	Sweet corn: Suckering	378 acres	3 acres	126	12	11 (from 1st to 15th)
	Picking and packing	145,617 lugs	70 lugs	1,040 †	25	42
	Tomatoes: Picking	2,135 tons	1 ton	2,135	13	165 (from 15th to 31st)
	Citrus, Grapefruit: Picking	152,670 field boxes	100 boxes	1,527	24	64)
	Oranges: Picking	558,600 field boxes	50 boxes	11,172	24	466) 673
	Lemons: Picking	34,180 field boxes	10 boxes	3,418	24	143)
	Peaches (cling): Picking	6,497 tons	1 ton	4,872 †	25	195
	(freestone): Picking	3,323 tons	1,500 pounds	4,431	25	178
	(freestone): Packing	2,492 tons	2,300 pounds	2,167	25	87
	Plums: Picking	210 tons	1,000 pounds	420	25	17
	Totals			39,638	25	1,586 man-months
September	Alfalfa: Mowing	11,000 acres	10 acres	825 †	26	32
	Raking	11,000 acres	20 acres	413 †	26	16
	Shocking	11,000 acres	2½ acres (in 5 hours)	3,300 (of 5 hours) †	26	127 (half-time)
	Baling	6,868 tons	3 tons	1,717 †	26	66
	Beans: Piling	2,463 acres	0.66 acre (in 4 hours)	3,695 (of 4 hours)	26	142
	Threshing	25,024 sacks	25 sacks	1,001	26	39

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Table 3 continued

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
September (continued)	Corn (ensilage): Cutting by hand and loading trucks	200 acres	0.5 acre	400	10	40 (from 20th to 30th)
	Sugar beets: Topping and loading	7,548 tons	5 tons	1,510	24	63
	Sweet corn: Picking and packing	145,617 lugs	70 lugs	1,040†	26	40
	Tomatoes: Picking	4,270 tons	1 ton	4,270	26	165
	Apples: Picking	1,044 tons	3,000 pounds	696	26	27
	Packing	679 tons	3,600 pounds	377	26	15
	Citrus, Grapefruit: Picking	94,510 field boxes	100 boxes	945	24	40)
	Oranges: Picking	625,100 field boxes	50 boxes	12,502	24	521) 775
	Lemons: Picking	51,270 field boxes	10 boxes	5,127	24	214)
	Grapes: Picking	21,382 tons	2,400 pounds	17,818	26	686
	Peaches (cling): Picking	1,624 tons	1 ton	1,218†	26	47
	(freestone): Picking	277 tons	1,500 pounds	370	26	15
	Walnuts: Shaking off, picking up and hulling by hand	1,566 tons	200 pounds	15,660	26	603
	Totals			72,884	26	2,804 man-months
October	Alfalfa: Mowing	11,000 acres	10 acres	825†	24	35
	Raking	11,000 acres	20 acres	413†	24	18
	Shocking	11,000 acres	2½ acres (in 5 hours)	3,300 (of 5 hours)†	24	138 (half-time)
	Baling	6,868 tons	3 tons	1,717†	24	72
	Beans: Piling	308 acres	0.66 acre (in 4 hours)	462 (of 4 hours)	12	39 (from 1st to 15th)
	Threshing	4,692 sacks	25 sacks	188	12	16 (from 1st to 15th)
	Corn (ensilage): Cutting by hand, and loading trucks	664 acres	0.5 acre	1,328	24	56
	Sweet potatoes: Picking up, hauling and dumping	75,636 lugs	100 lugs of 32 pounds	606†	12	51 (from 1st to 31st)
	Picking up and packing in field	75,636 lugs	35 lugs of 32 pounds	1,729†	12	144 (from 1st to 31st)
	Sugar beets: Topping and loading	4,568 tons	5 tons	914	24	38

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Table 3 continued

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
October (continued)	Sweet corn: Picking and packing	83,210 lugs	70 lugs	595†	12	50 (from 1st to 15th)
	Tomatoes; Picking	4,270 tons	1 ton	4,270	24	178
	Apples: Picking	3,655 tons	3,000 pounds	2,031	24	85
	Packing	2,454 tons	3,600 pounds	1,364	24	57
	Citrus, Grapefruit: Picking	50,890 field boxes	100 boxes	509	24	22
	Oranges: Picking	704,900 field boxes	50 boxes	14,098	24	588
	Lemons: Picking	68,360 field boxes	12 boxes	5,697	24	238
	Grapes: Picking	21,382 tons	2,400 pounds	17,818	24	743
	Walnuts: Shaking off, picking up, and hulling by hand	1,566 tons	200 pounds	15,660	24	653
	Totals			73,524	24	3,064 man-months
November	Corn (ensilage): Cutting by hand, and loading trucks	465 acres	0.5 acre	930	18	52 (from 1st to 20th)
	Sweet potatoes: Picking up, hauling in and dumping	75,636 lugs	100 lugs of 32 pounds	606†	12	51 (from 1st to 15th)
	Picking up and packing in field	75,636 lugs	35 lugs of 32 pounds	1,729†	12	144 (from 1st to 15th)
	Apples: Pruning	76 acres	0.17 acre	92†	10	10 (from 20th to 30th)
	Picking	522 tons	3,000 pounds	348	10	35 (from 1st to 10th)
	Packing	313 tons	3,600 pounds	174	10	18 (from 1st to 10th)
	Citrus, Oranges: Picking	319,200 field boxes	50 boxes	6,384	24	266
	Lemons: Picking	85,450 field boxes	12 boxes	7,121	24	297
	Grapes: Picking	10,690 tons	2,400 pounds	8,909	12	743 (from 1st to 15th)

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Table 3 continued.

Month	Crop and task	Size of task	Output per man-day	Required man-days	Available days	Required number of workers*
November (continued)	Walnuts: Shaking off, picking up, and hulling by hand	348 tons	200 pounds	3,480	10	348 (from 1st to 10th)
	Totals			29,773	24	1,241 man-months
December	Corn (Milo) for grain:					
	Cutting heads by hand	325 acres	0.75 acre	434	10	44 (from 1st to 15th)
	Threshing by stationary	2,782 sacks	100 sacks	28	6	5 (for 6 days)
	Cutting by combine	325 acres	5 acres	22 †	21	1
	Apples: Pruning	457 acres	0.17 acre	548 †	21	26
	Citrus, Oranges: Picking	492,100 field boxes	50 boxes	9,842	21	469
	Lemons: Picking	85,450 field boxes	16 boxes	5,341	21	255
	Grapes: Pruning	2,638 acres	0.75 acre	2,638	10	264 (from 15th to 31st)
	Burning brush	2,638 acres	2 acres	660 †	10	66 (from 15th to 31st)
	Totals			19,513	21	930 man-months

* On a monthly basis, unless otherwise noted.

† Estimated portion of work done by seasonal labor.

‡ Youngberry harvest may require three or four pickers per acre during the peak in June.

§ Fruit thinning varies greatly in amount, and frequently is not done when set is light. Figures given are for a good "set" of fruit.

¶ Data on labor used in drying apricots are from University of California Agr. Ext. Serv. Bul. 388.

TABLE 4

Summary of Seasonal Labor Needs by Months

San Bernardino County

Month	Required man-days of seasonal labor	Available work days	Required man-months of seasonal labor
January	50,143	19	2,640
February	54,316	22	2,469
March	53,650	23	2,333
April	83,811	23	3,644
May	70,660	25	2,826
June	59,265	25	2,371
July	55,361	26	2,130
August	39,638	25	1,586
September	72,884	26	2,804
October	73,524	24	3,064
November	29,773	24	1,241
December	19,513	21	930
Total	662,538	--	28,038

TABLE 4

Summary of Seasonal Labor Needs by Months

San Bernardino County

Month	Required man-days of seasonal labor	Available work days	Required man-months of seasonal labor
January	50,145	19	2,640
February	54,316	22	2,469
March	53,850	23	2,325
April	83,611	23	3,644
May	70,880	25	2,836
June	59,286	25	2,371
July	56,321	26	2,130
August	39,638	25	1,586
September	72,884	26	2,804
October	73,524	24	3,064
November	29,773	24	1,241
December	19,613	21	930
Total	682,838	---	28,038